

Appl'n No: 10/539,741
Amdt dated September 29, 2009
Reply to Office action dated August 4, 2009

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A medical or dental handpiece for use with a rotatable tool having a tool shaft for insertion into the handpiece and an axis of rotation, the tool shaft having a torque lock portion of non-circular cross-section having rotational symmetry, the handpiece comprising:

a handle portion for gripping by a user;

a drive head connected with the handle portion and forming a drive housing;

a drive for generating torque, the drive rotatably supported in the drive housing for rotation about an axis of rotation, the drive having an axial bore; and

a spindle received in the axial bore of the drive for transferring torque generated by the drive to the rotatable tool when inserted into the handpiece, the spindle having an axial tool bore for receiving the tool shaft, the spindle being connected to the drive for torque transmission, the spindle including a tool retaining arrangement for releasably retaining the tool shaft in the axial tool bore against axial movement upon insertion of the tool shaft into the axial tool bore, the spindle further including a torque lock independent of and axially spaced from the tool retaining arrangement and positioned concentrically in the axial tool bore of the spindle for concentrically receiving the torque lock portion of the tool shaft, the torque lock having at least a portion of non-circular cross-section ~~non-complementary to~~ adapted for engaging and locking at least a portion of the torque lock portion of the tool shaft to prevent rotation of the torque lock portion of the tool shaft in the torque lock, while permitting axial insertion of the torque lock portion of the tool shaft into the torque lock, the torque lock being connected to the spindle for rotation therewith.

2. (Cancelled) ,

Appl'n No: 10/539,741
Amdt dated September 29, 2009
Reply to Office action dated August 4, 2009

3. (Currently amended) The handpiece as defined in claim 1, wherein the torque lock is shaped and constructed for receiving the torque lock portion of the tool shaft having a triangular cross-section, ~~the torque lock having a cross-section non-complementary to that of the torque lock portion of the tool shaft.~~

4. (Previously presented) The handpiece of claim 1, wherein the torque lock has a bore for receiving the torque lock portion of the tool shaft and a torque transfer member, the torque transfer member being a protrusion extending radially inwardly into the bore for locking the torque lock portion of the tool shaft against rotation, while permitting axial insertion of the torque lock portion of the tool shaft into the torque lock.

5. (Previously presented) The handpiece of claim 4, wherein a surface of the torque transfer member which engages the torque lock portion of the tool shaft during insertion of the tool shaft into the axial tool bore of the spindle has a rounded shape for automatically directing the torque lock portion of the tool shaft past the torque transfer member to achieve a self-alignment of the torque lock portion in the torque lock during insertion of the tool shaft.

6. (Previously presented) The handpiece of claim 4, wherein the tool retaining arrangement includes a pair of complementary, interengaging elements respectively incorporated into the spindle and the tool shaft.

7. (Currently amended) A torque transfer arrangement for a medical or dental handpiece having a drive for generating torque for rotatably driving a burr about an axis of rotation, the burr having an axis of rotation and a burr shaft with a torque lock portion of non-circular cross-section having rotational symmetry and the drive having an axial bore, the torque transfer arrangement comprising:

a spindle to be received in the axial bore of the drive, the spindle having an axial tool bore for receiving the burr shaft, the spindle being connectable with the drive for torque transmission, the spindle further including a burr retaining arrangement for releasably retaining the burr shaft in the axial tool bore against axial movement upon insertion of the burr shaft into the axial tool bore; and

Appl'n No: 10/539,741
Amdt dated September 29, 2009
Reply to Office action dated August 4, 2009

a torque lock independent of and axially spaced from the burr retaining arrangement and positioned concentrically in the axial tool bore of the spindle for receiving the torque lock portion of the burr shaft, the torque lock having at least a portion of non-circular cross-section ~~non-complementary to~~ adapted for engaging and locking at least a portion of the torque lock portion of the burr shaft to prevent rotation of the burr shaft in the torque lock while permitting axial insertion of the torque lock portion of the burr shaft into the torque lock, the torque lock being connected to the spindle for rotation therewith.

8-10. (Cancelled)

11. (Currently amended) The torque transfer arrangement of claim 7, wherein the cross-section of the torque lock portion of the burr shaft is triangular ~~and the cross-section of the torque lock is non-complementary thereto.~~

12. (Previously presented) The torque transfer arrangement of claim 7, wherein the torque lock portion of the burr shaft is a terminal portion of the burr shaft and the torque lock has a bore for receiving the torque lock portion of the burr shaft and a torque transfer member protruding radially inwardly into the bore for preventing rotation of the torque lock portion of the burr shaft in relation to the spindle while permitting axial insertion of the burr shaft into the spindle.

13. (Previously presented) The torque transfer arrangement of claim 12, wherein end surfaces of the torque transfer member and the terminal portion of the burr shaft which come into mutual contact during insertion of the burr shaft into the torque transfer arrangement have a rounded shape for directing the end surface of the terminal portion of the burr shaft past the torque transfer member to achieve a self-alignment of the terminal portion of the burr shaft relative to the torque transfer member during insertion of the burr shaft.

14. (Previously presented) The torque transfer arrangement of claim 12, wherein the burr retaining arrangement includes a pair of complementary, interengaging structures respectively incorporated into the spindle and the burr shaft.

15-34. (Cancelled)

Appl'n No: 10/539,741
Amndt dated September 29, 2009
Reply to Office action dated August 4, 2009

35. (Previously presented) The handpiece as defined in claim 1, wherein the torque lock has a torque transfer member extending radially inwardly into the axial tool bore of the spindle for engagement of the torque lock portion of the tool shaft.

36. (Currently amended) A medical or dental handpiece for use with a rotatable tool having a tool shaft for insertion into the handpiece and an axis of rotation, the tool shaft having a torque lock portion of non-circular cross-section having rotational symmetry, the handpiece comprising:

a handle portion for gripping by a user;

a drive head connected with the handle portion and forming a drive housing;

a drive for generating torque, the drive rotatably supported in the drive housing for rotation about an axis of rotation, the drive having an axial bore; and

a spindle received in the axial bore of the drive for transferring torque generated by the drive to the rotatable tool when inserted into the handpiece, the spindle having an axial tool bore for receiving the tool shaft, the spindle being connected to the drive for torque transmission, the spindle including a tool retaining arrangement for releasably retaining the rotatable tool in the axial tool bore against axial movement upon insertion of the tool shaft into the axial tool bore, wherein the tool retaining arrangement includes a pair of complementary, interengaging structures respectively incorporated into the spindle and the tool shaft, the spindle further including a torque lock independent of and axially spaced from the tool retaining arrangement and positioned concentrically in the axial tool bore of the spindle for concentrically receiving the torque lock portion of the tool shaft, the torque lock having at least a portion of non-circular cross-section ~~non-complementary to~~ adapted for engaging and locking at least a portion of the torque lock portion of the tool shaft to prevent rotation of the torque lock portion of the tool shaft in the torque lock, while permitting axial insertion of the torque lock portion of the tool shaft into the torque lock, the torque lock being connected to the spindle for rotation therewith.

37. (Previously presented) The handpiece as defined in claim 1 or 36, wherein the drive is part of a drive unit including a turbine, a pair of axially spaced apart bearings for rotatably

Appl'n No: 10/539,741
Amdt dated September 29, 2009
Reply to Office action dated August 4, 2009

supporting the turbine in the drive housing and a chuck, the chuck including the spindle with the tool retaining arrangement and the torque lock.

38. (Currently amended) A medical or dental handpiece for use with a rotatable tool having a tool shaft for insertion into the handpiece and an axis of rotation, the tool shaft having a torque lock portion of non-circular cross-section having rotational symmetry, the handpiece comprising:

a handle portion for gripping by a user;

a drive head connected with the handle portion and forming a drive unit housing; and

a drive unit for generating torque, the drive unit rotatably supported in the drive unit housing for rotation about the axis of rotation, the drive unit including a drive generating torque, a chuck for receiving the rotatable tool and for transferring torque generated by the drive to the rotatable tool when inserted into the handpiece, the chuck including a spindle having an axial tool bore for receiving the tool shaft, the spindle having a tool retaining arrangement for releasably and frictionally retaining the rotatable tool in the axial tool bore against axial movement upon insertion of the tool shaft into the axial tool bore, the spindle further including a torque lock independent of and axially spaced from the tool retaining arrangement and inserted concentrically into the axial tool bore of the spindle for concentrically receiving the torque lock portion of the tool shaft, the torque lock having at least a portion of non-circular cross-section ~~non-complementary to~~ adapted for engaging and locking at least a portion of the torque lock portion of the tool shaft to prevent rotation of the torque lock portion of the tool shaft in the torque lock, while permitting axial insertion of the torque lock portion of the tool shaft into the torque lock, the torque lock being connected to the spindle for rotation therewith.

39. (Previously presented) The handpiece of claim 38, wherein the drive unit further includes a turbine and a pair of bearings for rotatably supporting the turbine in the drive unit housing, the turbine having an axial bore and the spindle being received in the axial bore of the turbine and connected to the turbine for torque transmission.